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A REENLISTMENT INDEX.(U)

AUG 55 M A GORDON, A CARP, G BURGESS

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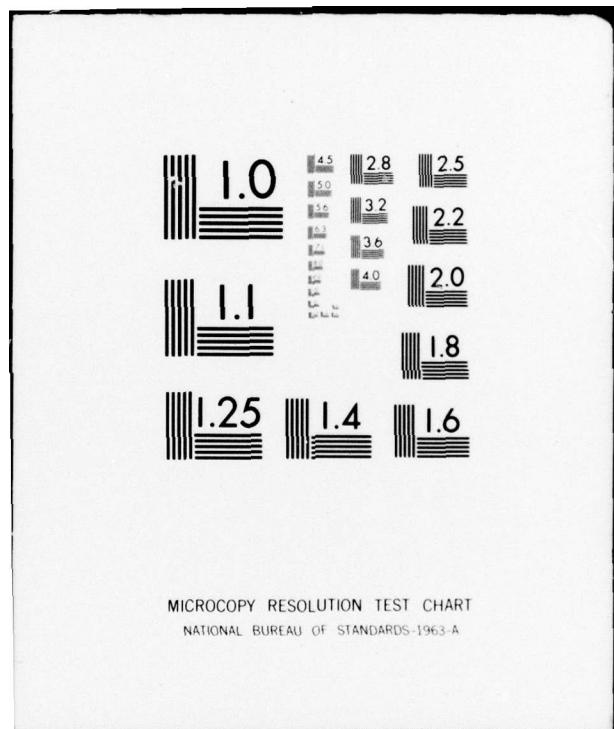
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⑨ TECHNICAL MEMORANDUM  
⑩ PRL-TM-55-28

⑥ A REENLISTMENT INDEX

⑩ By Mary Agnes Gordon,  
A. Carp,  
George Burgess,  
T/SGT H.G. Lawrence  
A72C E. Seldon/Clark

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PERSONNEL RESEARCH LABORATORY  
Air Force Personnel and Training Research Center  
Air Research and Development Command  
Lackland Air Force Base, Texas

⑫ 4p.

Project 7700  
Task 17001

LLOYD G. HUMPHREYS  
Director of Research  
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## A REENLISTMENT INDEX

Purpose. The purpose of this project was to devise a composite index to predict reenlistment of airmen in the electronics career field. The variables in the composite were limited to test scores and personal data available during basic training.

Method. The approach to the problem was exploratory. A preliminary study of the relation to reenlistment of all available test scores and personal data, using a group which had been tested from June 1949 through February 1950 and who had either been discharged or had reenlisted by June of 1954 showed which variables were most relevant. A second study showed that different variables would have different prediction values in different career fields and different values for white and Negro groups. A third study of several experimental measures of interest and background which had been used in another project but were available for a small sample in the reenlistment study suggested that a low socio-economic background favored reenlistment.

On the basis of these preliminary studies, and in consideration of Air Force need, it was decided to limit the initial effort to the prediction of reenlistment in the electronics career field and to use a weighted composite of age, education, army area from which recruited, score on Attitude Survey, and score on a special biographical key designed to predict reenlistment in the electronics career field. A formula for weighting these variables was derived from their interrelationships in the June 1949-February 1950 sample. This formula yields the proposed reenlistment index.

The reenlistment index was applied to a later sample of airmen who were tested from January 1950 through October 1950, and had been discharged or had reenlisted by the end of their enlistment term. This range of testing dates spans the outbreak of the Korean War. Beginning in July 1950 the number of men entering the Air Force was greatly increased and their characteristics were somewhat different from those of the pre-Korean period. Hence, results are reported separately for the pre-Korean and post-Korean groups.

Results. The biserial correlation between the reenlistment index and reenlistment among white airmen in the electronics career field was .20 in the pre-Korean group and .15 in the post-Korean group. The correlation between the reenlistment index and reenlistment over the whole period was .20 for Negroes. These results indicate that selection on the proposed reenlistment index would provide a slight improvement in the reenlistment rate in this career field. Attachment 1 shows the improvement in the reenlistment rate that can be expected under the specified conditions, assuming that no other factors influence the rate. The specified conditions are that the group meet the aptitude qualifications for the electronics career field, that the rate of reenlistment is 10 per cent and that the validity of the reenlistment index is .20. These are the conditions that prevailed in the January-June 1950 sample. Under these conditions the expected rate of reenlistment is shown for each stanine score on the reenlistment index. If a minimum score of 7 is required on the reenlistment index, a previous reenlistment rate of 10 per cent could be raised to 15 per cent. For minimum scores of 6, 5, or 4, the expected rates would be 14, 12, and 11, respectively. Of those who qualify on the electronics aptitude index, 23 per cent are expected to have scores of 7 or above on the reenlistment

index, 40 per cent to have scores of 6 or above, and 60 per cent to have scores of 5 or above.

A high score on the reenlistment index describes an airman who is older than the average, who went to high school but did not graduate, who came from a southeastern state, had a favorable military attitude, and a high score on the special biographical key. A high score on the special biographical key describes a man who had no preconceived ambition for a highly technical job in the Air Force and whose previous experience, recreation, and hobbies have not been directed toward mechanical or technical subjects. This concept is in accord with the hypothesis that a man is more likely to reenlist if the Air Force offers him greater opportunity than he could expect in his home environment.

Recommendations. Use of the reenlistment index developed would provide some improvement in the ultimate reenlistment rate in the electronics area. Decision as to whether to use the index should be based on such factors as availability and cost of an additional test (attitude survey), cost of scoring and computing the index, and the significance, operationally, of the expected increase in reenlistment. Research is continuing toward increasing the validity of the electronics reenlistment index and testing its validity for other categories of personnel, e.g., aviation mechanics. It will also be determined whether specially designed indexes for other personnel categories can give more accurate predictions than the present index.

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ATTACHMENT 1

Proposed Reenlistment Index with Expected Frequencies and Reenlistment Rates

( $r = .20$ , rate = .10)

<u>Stanine Score on Reenlistment Index</u>	<u>Expected Cumulative Frequency</u>	<u>Expected Reenlistment Rate: for each stanine</u>	<u>for different cut-offs</u>
9	4	.194	
8	11	.157	
7	23	.135	.15
6	40	.114	.14
5	60	.096	.12
4	77	.080	.11
3	89	.066	
2	96	.053	
1	100	.042	